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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,263	11/12/2003	John S. Laudo	BAT 0064 PA/40078.252	6864
7590 09/20/2005			EXAMINER	
DINSMORE & SHOHL LLP			DOAN, JENNIFER	
Suite 500			ART UNIT	
One Dayton Centre			PAPER NUMBER	
Dayton, OH 45402-2023			2874	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/706,263

Applicant(s)

LAUDO, JOHN S.

Examiner

Jennifer Doan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2-47 and 51-69 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 51-63 is/are allowed.
- 6) ☒ Claim(s) 2-4, 6-19, 21-25, 37 and 67-69 is/are rejected.
- 7) ☒ Claim(s) 5, 20, 26-36, 38-47 and 64-66 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 022504 & 041504.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The prior art documents submitted by applicant in the Information Disclosure Statements filed on 02/25/04 and 04/15/2004, have all been considered and made of record (note the attached copy of form PTO-1449).

### ***Drawings***

2. The drawings, filed on 11/12/2003, are accepted.

### ***Specification***

3. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 2-4, 6-10, 13-19, 21-25, 37 and 67-69 are rejected under 35 U.S.C. 102(b) as being anticipated by Artigue (U.S. Patent 5,371,813).

With respect to claims 2-4, 6, 7 and 67-69, Artigue (figures 1 and 2) discloses an integrated optical device comprising a waveguide body (32) and/ or a planar waveguide body (32) configured to permit propagating of the optical signal, wherein at least a substantial portion of the waveguide body comprises an optical amplification medium (column 1, lines 11-19); a spectral combiner/ divider (see figure 1) near a boundary of the waveguide body (32), wherein the spectral combiner/ divider is configured such that a spatial distribution of an optical signal propagating to and from the spectral combiner/ divider lies in the plane of the waveguide body (32) and is a function of respective component wavelengths of the multicomponent optical signal, and a substantial portion of the optical signal propagates through the optical amplification medium and a primary input / output channel defined in the waveguide body (32) and a set of displaced input/ output channels defined in the waveguide body (32), wherein a displacement of each of the displaced input/output channels from the primary input / output channel is defined at least in part by the spectral combiner / divider (see figure 1).

With respect to claims 8-10 and 13, Artigue discloses the integrated optical device, wherein the waveguide body comprises a doped waveguide; wherein the waveguide body comprises a doped glass slab; further the optical amplification medium comprises a doped waveguide material and wherein the doped waveguide material comprises a dopant selected from the rare earth elements and transition metals (column 1, lines 11-19).

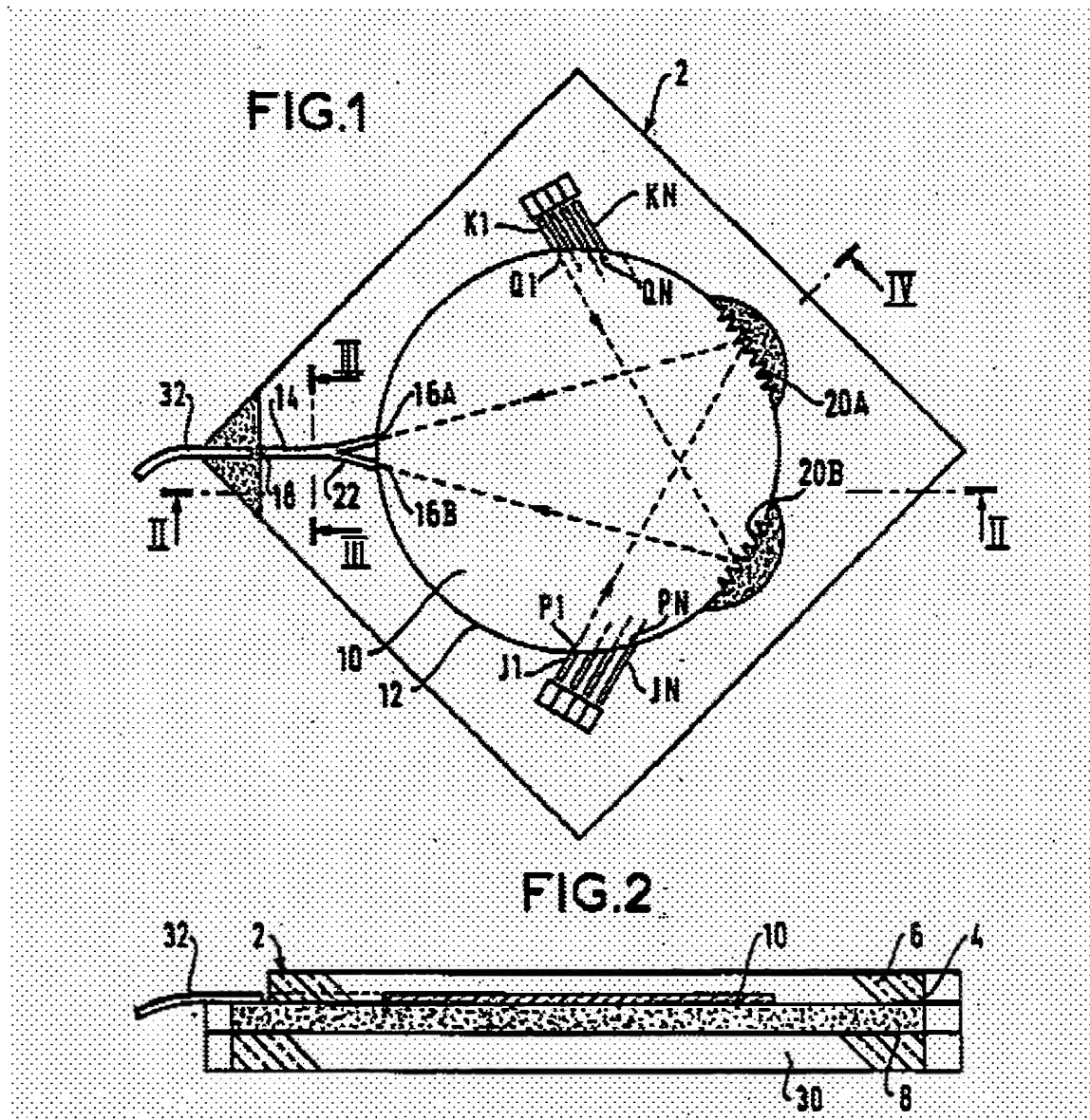
With respect to claims 14-18, Artigue (figure 1) discloses the integrated optical device, wherein the spectral combiner / divider is secured to the boundary of the waveguide body (32), formed at an interface with the boundary of the waveguide body (32), formed in the waveguide body (32), optically coupled to the boundary of the waveguide body (32) and formed integral with the waveguide body as an extension of the waveguide body (32).

With respect to claims 19 and 21, Artigue (figure 1) discloses the integrated optical device, wherein the spectral combiner / divider comprises a reflective grating structure (20A and 20B).

With respect to claims 22-24, Artigue (figure 1) discloses the integrated optical device, wherein the primary input / output channel and the set of displaced input / output channels are defined in the waveguide body by input/output structure formed within the waveguide body (32), at an interface with the waveguide body (32), and optically coupled to the waveguide body (32).

With respect to claim 25, Artigue (figure 1) discloses the integrated optical device, wherein the displacement of each of the displaced input / output channels includes distance and direction components.

With respect to claim 37, Artigue (figure 1) discloses the integrated optical device, wherein the primary input / output channel defines a multidirectional path propagating through the optical amplification medium.



***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Artigue (as cited above).

With respect to claims 11 and 12, Artigue substantially discloses all the limitations of the claimed invention except the waveguide material is selected from a glass, a polymer, and combinations of thereof.

However, the waveguide material being selected from a glass, a polymer, and combinations of thereof is considered to be obvious, since the optical signal transmission is dependent on the waveguide material. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the material as claimed to make the waveguide of Artigue's device for the purpose of obtaining high efficiency of optical signal transmission, and it also has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

***Allowable Subject Matter***

8. Claims 5, 20, 26-36, 38-47 and 64-66 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to disclose the integrated optical device, wherein the optical amplification medium is present along multiple legs of the folded optical path as recited in claim 5; wherein the grating structure is secured to the waveguide body at a curved interface with the waveguide body as recited in claim 20; wherein the primary input / output channel, the spectral combiner / divider and the displaced input / output channels defines a folded optical path as recited in claim 26; wherein the multidirectional path comprises a spiral component as recited in claim 38; a folded spiral component as recited in claim 39; wherein the primary input / output channel defines a configuration designed to yield optical signal amplification sufficient to offset optical losses as recited in claims 40 and 44; wherein the waveguide body is configured as a sensing region as recited in claims 64-66.

9. Claims 51-63 are allowed.

The prior art of record fails to disclose an integrated optical device comprising an erbium or ytterbium-doped glass slab waveguide body configured to permit propagation of an optical signal having multiple spectral components, wherein the waveguide body is doped sufficiently for amplification of the multi-component optical signal and a spectral



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combiner / divider at a curved periphery of the waveguide body; and an optical network comprising at least one transmitter configured to transmit an optical signal having multiple spectral components; at least one regenerator configured to amplify the multi-component optical signal; and at least one receiver configured to receive the multi-component optical signal, wherein at least one of the transmitter, regenerator, and receiver comprises at least one integrated optical device.

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Doan whose telephone number is (571) 272-2346. The examiner can normally be reached on Monday to Thursday from 6:00 am to 3:30 pm, second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink that reads "Jennifer Doan". The script is cursive and fluid, with the first name and last name clearly distinguishable.

Jennifer Doan

Patent examiner

September 8, 2004